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Title
Integration of PC-based 3D immersion technology for bio-mimetic study of human interactive robotics.

Author(s)
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Abstract
Two novel immersion type experimental platforms integrating low cost PC-based 3D **VR** technology are developed and actively used for bio-mimetic study on new paradigm of human interactive robotics. The first platform integrated PC-based immersion-type display with a motion capture system as well as a 3D dynamic simulator, which makes it possible for human subject to feel as if he/she is immersed within the same environment of the robot. It can be used to simulate and evaluate the physical interaction with human while not really damage him/her. The second one consists of real and virtual dual-arm robot equipped with vision and **force sensors.** Through **force** display and HMD, human operator can feel as if he/she is immersed within the robot **body** and perform tele-manipulation easily based on our unilateral control approach. (7 refs).

Descriptors

biomimetics; force-sensors; human-computer-interaction; object-recognition; robot-vision; virtual-reality.

Keywords

human interactive robotics; biomimetic study; 3D immersion technology; motion capture system; 3D dynamic simulator; robot vision; **force sensors;** virtual robots.

Classification codes

C3390 (Robotics).
C6130V (Virtual **reality**).
C6180 (User interfaces).
C5260B (Computer vision and image processing techniques).
C3240 (Transducers and sensing devices).